DOCUMENT RESUME

ED 283 283 EA 019 509

AUTHOR Gough, Noel
TITLE Forecasting Curriculum Futures: Arts of Anticipation in Curriculum Inquiry.
PUB DATE Apr 87
NOTE 19p.; Paper presented at the Annual Meeting of the American Educational Research Association (Washington, DC, April 20-24, 1987).
PUB TYPE Speeches/Conference Papers (150) -- Information Analyses (070)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Curriculum Development; *Curriculum Evaluation; *Curriculum Research; Elementary Secondary Education; Foreign Countries; *Futures (of Society); Methods; Prediction; Time Perspective; Traditionalism; Values
IDENTIFIERS *Australia

ABSTRACT

Futures study is a forward-looking equivalent of history--not predicting the future, but attempting to discipline our anticipations of the future (or of a future) as we perceive it now. This paper investigates the extent to which futures study shares with history and comparative study an empirical, as distinct from normative, starting point for curriculum inquiry. Analysis treats anticipation as a practical or deliberative art and provides specific examples of methods and procedures for using arts of anticipation in curriculum study. Three general principles for exploring futures in education have significance for curriculum inquiry, including the following: (1) anticipation of a plurality of futures--investigating probable, possible, and preferred alternative futures; (2) an eclectic approach to sources and methods--examining major sources of alternative futures images; and (3) critique and negotiations of meaning--critically analyzing traditions, values, concepts, and images embedded in everyday language that mediate interpretations of experience. The paper discusses temporality in curriculum and the functions of temporal continuities and ambiguities in curriculum discourse. Included in the study are 7 figures and 22 references. (WTH)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

FORECASTING CURRICULUM FUTURES: ARTS OF ANTICIPATION IN CURRICULUM INQUIRY

Noel Gough
Victoria College
662 Blackburn Road
Clayton
Victoria 3181
AUSTRALIA

ABSTRACT

This paper examines the contributions of futures study to curriculum research with particular reference to the proposition that futures study complements historical and comparative studies in offering a distinctive frame of reference for asking questions about curriculum. The paper explores the complementary roles of historical and futures studies in providing a critical perspective on temporality in curriculum and the functions of temporal continuities and ambiguities in curriculum discourse. The paper treats anticipation as a practical (deliberative) art and provides specific examples of methods and procedures for using arts of anticipation in curriculum study.

ED283283

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

X This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Noel Gough

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

EA 019 509

BEST COPY AVAILABLE

FORECASTING CURRICULUM FUTURES: ARTS OF ANTICIPATION IN CURRICULUM INQUIRY

(Paper presented in a symposium, "Other Times, Other Places: Historical, Comparative and Futures Studies as Sources of Questions Within Curriculum Research", at the Annual Meeting of the American Educational Research Association, Washington, D.C., USA, 20-24 April 1987)

Noel Gough
Victoria College
AUSTRALIA

This paper explores the proposition that futures study complements historical and comparative studies in offering a distinctive frame of reference for asking questions about curriculum. In the context of this symposium, a first question to be addressed is the extent to which futures study shares with history and comparative study an "empirical" (as distinct from "normative") starting point for curriculum inquiry. This question may best be illuminated by an example.

THE KESH WAY OF LEARNING: HISTORY, COMPARISON OR SPECULATION?

The Kesh live in a different time and place from us and what follows is an abridged version of the life story of one of their number, a man called Fairweather. This story, and especially the translator's note which accompanies it, reveals much about the Kesh view of learning. It is clearly a different view of learning from that which pervades and persists in contemporary Western societies. But I would argue that the story's value in providing a critical perspective on curriculum practice in our own time and place does not depend to any great extent on knowing precisely when and where we might find the Kesh.

> He was well educated in his household...and became a member of the Planting Lodge at thirteen years old... During his adolescence he learned arboriculture with his mother's brother, a scholar of the Planting Lodge...and with orchard trees of all kinds.
>
> ...he came to Kastoha-na, where he [studied] the way the trees grew there, as the orchards of Kastoha were the richest and most beautiful anywhere in those times... Fairweather...went to live in the household of...a forester, working mostly with the oaks that are cut for fine carpentry. For some years he worked with her in locating, selecting, cutting, and replanting forest oaks. He joined the Wood Art.
>
> Whenever he was back in Kastoha he worked at crossbreeding varieties of pear. In those times none of the Valley pears was very good, all were subject to cankers, and most needed irrigation to bear well. To obtain varieties of trees...he asked people in the north for help. Some seedling pear trees were sent to him from orchards... far in the north... By crossbreeding the northern trees with a pear tree he had found growing wild above the oak forests...he came upon a strong, small, and drought-hardy tree with excellent fruit, and he came to Sinshan to plant some of the seedlings. Now this is the brown pear grown in most orchards and gardens, and people call it the Fairweather pear...
>
> Fairweather began to study with the apple trees of the Upper Valley orchards, working at crossbreeding to help the mountain apples resist the edge-curl disease. He was also doing a great work of many years with the soils and earths of the foothills of the Mountain and

> the trees that grew in the various soils, learning where and how they grew...
>
> He continued to work in the orchards of Sinshan, planting, tending, pruning, cleaning, fertilising, weeding, and picking...till he was eighty-one. He died of pneumonia after working in the plum orchards of Sinshan in the rain.
>
> [Fairweather] was my father's father... I am writing this for the library... so that he may be remembered for a while when pear trees are planted or orchards praised.
>
> TRANSLATOR'S NOTE:
>
> ... *he learned arboriculture with his mother's brother...and with orchard trees of all kinds.*
>
> We would be more likely to say that he learned *from* his uncle *about* orchard trees; but this would not be a fair translation of the repeated suffix *oud*, with, together with. To learn *with* an uncle and trees implies that learning is not a transfer of something by someone to someone, but is a relationship. Moreover, the relationship is considered to be reciprocal. Such a point of view seems at hopeless odds with the distinction of subject and object considered essential to science. Yet it appears that [Fairweather's] genetic experiments or manipulations were technically skilful, and that he was not ignorant of the theories involved, and it is certain that he achieved precisely what he set out to achieve. And the resulting strain of tree was given his name: a type case, in our vocabulary, of Man's control over Nature. This phrase, however, could not be translated into Kesh, which had no word meaning Nature except *she*, being; and anyhow the Kesh saw the Fairweather pear as the result of a collaboration between a man and some pear trees. The difference of attitude is interesting and the absence of capital letters perhaps not entirely trivial.
> (Ursula Le Guin, 1985:273-5)

The difference in attitude is, indeed, interesting; moreover, it is the <u>difference</u> between the Kesh view of learning and our own that gives the story its critical edge. If Fairweather's story, and Le Guin's translation of it, helps us to penetrate the taken-for-grantedness of existing curricular conceptions, then it matters little whether the Kesh are historical (and/or anthropological) "fact" or a speculative fiction of Le Guin's imagination. The fact of the story's existence is enough to provide us with questions for curriculum inquiry. In Le Guin's words, the Kesh "might be going to have lived a long, long time from now in Northern California" and her book about them translates "their voices speaking for themselves" (1985: xi). But to dismiss her story as "mere" speculative fiction both undervalues the creative imagination as a source of critical insights and overvalues the "factual" basis of historical and comparative studies. As Le Guin says of her own work:

> The difficulty of translation from a language that doesn't yet exist is considerable, but there's no need to exaggerate it. The past, after all, can be quite as obscure as the future. The ancient Chinese book called *Tao teh ching* has been translated into English dozens of times, and indeed the Chinese have to keep retranslating it into Chinese at every cycle of Cathay, but no translation can give us the book that Lao Tze (who may not have existed) wrote. All we have is the *Tao teh ching* that is here, now. And so with translations from a literature of the (or a) future. The fact that it hasn't yet been written, the mere absence of a text to translate,

> doesn't make all that much difference. What was and what may be lie, like children whose faces we cannot see, in the arms of silence. All we ever have is here, now. (Le Guin, 1985: xi)

Thus, futures study can be seen as a forward-looking equivalent of history. Historical study cannot give us the past but attempts to discipline our interpretations of the (or a) past as it appears to us here, now. Similarly, futures study cannot tell us much about the future but attempts to discipline our anticipations of the (or a) future as it appears to us here, now. Richard Slaughter's elegant conceptualization of relationships between past, present and future (see Figure 1) suggests that the present can be thought of as a slipping "knot in time" which ties together our interpretations of the past and our anticipations of the future (Slaughter, 1985).

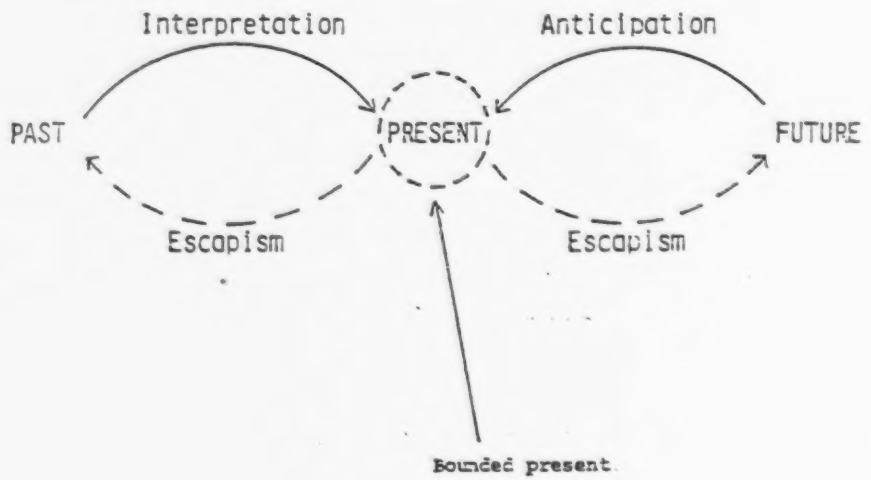


Figure 1: Relationships between past, present and future (Slaughter, 1985)

As Figure 1 suggests, history and futures study are equally important in helping us to avoid the temptation of withdrawing to the narrow confines of an attenuated and bounded present. Such a withdrawal leads to a kind of temporal chauvinism - an exaggeration of the unique qualities of the present and the "obsessive contemporaneity" that characterizes many sociological studies of curriculum (Goodson, 1985: 1). History and futures study also help us to avoid looking to either past or future as an escape from the present. The value of interpreting the past and anticipating the future is realized when each is reconnected to the present. We do not usually study the past in order that we may remain psychologically stranded in Ancient Greece or with Australia's convict settlers, but in order to return to the present with the understandings gained. Similarly, the most useful examples of the arts of anticipation are not those that leave us captive in Steven Spielberg's dreams or George Orwell's nightmares, but those which invite us to think more clearly, critically and creatively about what we are doing here, now, in the present within which past and future are enfolded.

A common misconception of futures study is to equate it with prediction. However, as Figure 2 illustrates, prediction is only one activity among many in the wide spectrum of activities and influences that comprise the futures field. Indeed, the view of futures study embodied in this paper sees prediction itself as a rather narrow and unrewarding activity, though the products of prediction (hopes, fears, probabilities) are data which can and should be drawn upon for analysis, synthesis and critical evaluation.

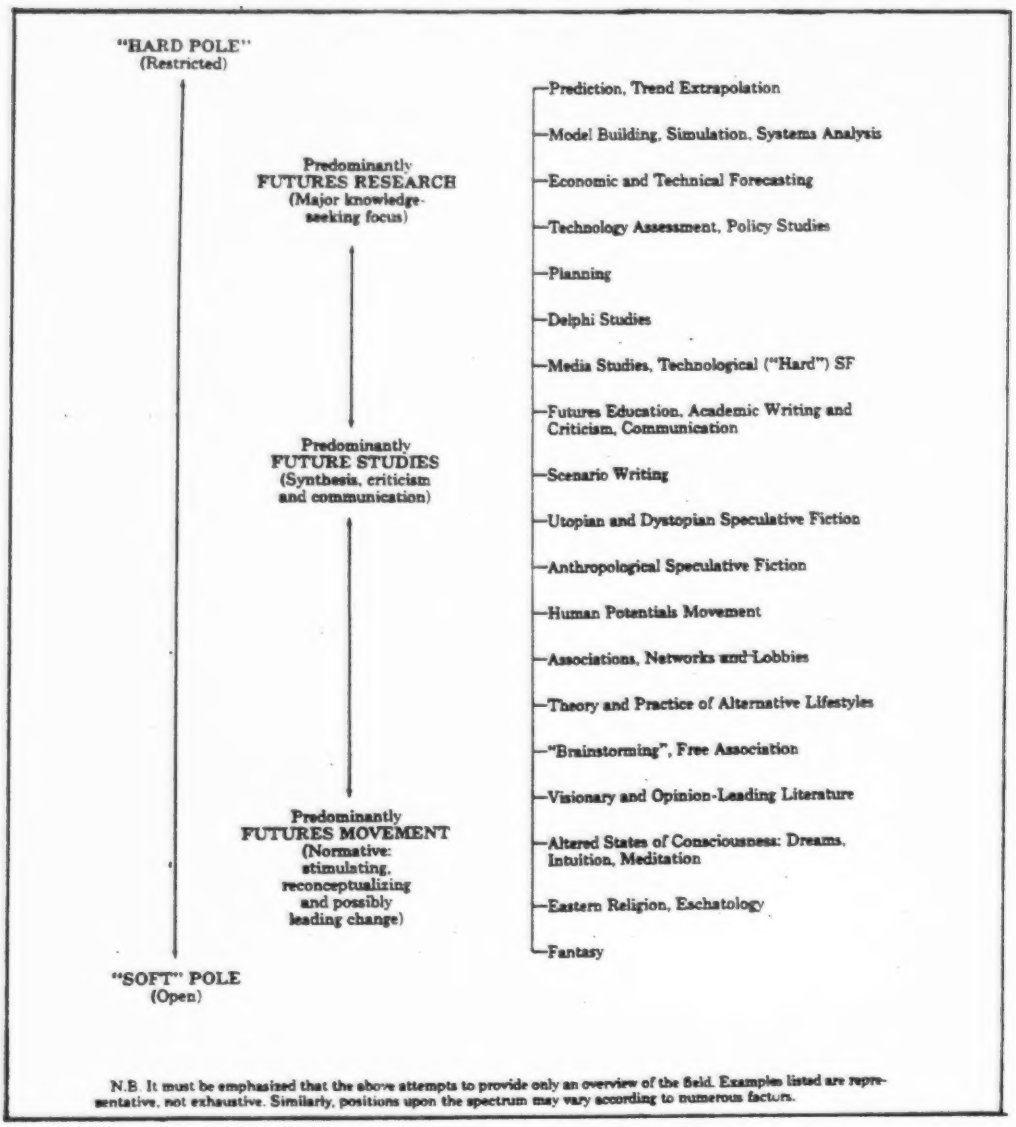

"HARD POLE"
(Restricted)
Predominantly
FUTURES RESEARCH
(Major knowledge-seeking focus)
Predominantly
FUTURE STUDIES
(Synthesis, criticism and communication)
Predominantly
FUTURES MOVEMENT
(Normative: stimulating, reconceptualizing and possibly leading change)
"SOFT" POLE
(Open)
Prediction, Trend Extrapolation
Model Building, Simulation, Systems Analysis
Economic and Technical Forecasting
Technology Assessment, Policy Studies
Planning
Delphi Studies
Media Studies, Technological ("Hard") SF
Futures Education, Academic Writing and Criticism, Communication
Scenario Writing
Utopian and Dystopian Speculative Fiction
Anthropological Speculative Fiction
Human Potentials Movement
Associations, Networks and Lobbies
Theory and Practice of Alternative Lifestyles
"Brainstorming", Free Association
Visionary and Opinion-Leading Literature
Altered States of Consciousness: Dreams, Intuition, Meditation
Eastern Religion, Eschatology
Fantasy
N.B. It must be emphasized that the above attempts to provide only an overview of the field. Examples listed are representative, not exhaustive. Similarly, positions upon the spectrum may vary according to numerous factors.

Figure 2: The futures field - a spectrum of activities and influences (Slaughter, 1984)

TEMPORAL HORIZONS OF CURRICULUM DISCOURSE

Much curriculum discourse has been limited by the temporal horizons of the past and the present, resulting in a kind of "temporal asymmetry" (Slaughter, 1983: 31) in the language and literature of curriculum study. This asymmetry is much more than a matter of curriculum content being shaped largely by traditions inherited from the past or perceptions of "relevance" in the present. It is also reflected in the legitimacy assumed for forms of inquiry which seek data about past or present human experiences such as, respectively, historical and comparative studies of curriculum. But the application of futures study to curriculum work does not only serve to redress this imbalance. Rather, it helps to provide a critical perspective on temporality in curriculum and alerts us to the ways in which temporal continuities and ambiguities function in mediating our experiences of curriculum.

For example, Madeleine Grumet (1981) has drawn attention to "temporal reductionism" - the arbitrary attribution of human experience to limited and specific periods of time such as the past, the present or the future. Time runs as a continuous thread through curriculum work but our experience at any given moment is a complex enfolding of our interpretations of the past, perceptions of the present and anticipations of alternative futures. Grumet sees an autobiographical method for curriculum theorizing as one way of obtaining a creative and critical grasp on this complexity. In autobiography we can reveal the extent to which our pasts are suffused with our futures in the form of hopes, fears, expectations and intentions. Conversely, autobiography can reveal the extent to which what we try to recover from the past and perceive in the present is determined by our aspirations and anticipations. In her insistence that autobiography involves not only the "restitution and reconstruction" of educational experience but also its rehearsal, Grumet is in implicit support of the view of futures study explicated here: that the arts of anticipation are not only useful in the revelation and realization of possible futures but that they also inform our understandings of the past and our choices within the present.

Another kind of temporal reductionism is alluded to by Goodson (1985:3-4) in his critique of sociological studies of curriculum which "raid" the past to obtain historical "snapshots" to "sharpen contemporary axes" without tracing the connections between current curricular forms and their historical antecedents. A similar critique can be made of those who draw on the "hard pole" of futures research (see Figure 2) to justify curricular inclusions or exclusions. "Raids" on the future are conducted using techniques such as trend extrapolation, modelling, simulation, and economic and technical forecasting. These "raids" produce future "snapshots" in the form of predictions about a "post-industrial society", "technological change", "the information age" and the like. Those who put such predictions to use in curriculum decision-making often assume that education should be a "preparation" for the future as predicted. Even leaving aside the debate about whether or not education should be a "preparation" for anything, there are at least two difficulties with such approaches.

First, predicted futures give us little hope of transcending our own histories since they are themselves products of the scientific, technological and economic determinism that has shaped Western industrial society and its systems of mass education for two centuries. Predicted futures invariably reinforce the taken-for-granted, the stereotypical and the status quo and, furthermore, help to perpetuate the view that the most worthwhile kinds of knowledge are those that can be structured by reference to the models and methods of positivist science.

Secondly, techniques such as trend extrapolation, simulation and modelling invest the future with a spurious objectivity - times to come are seen as the metaphorical equivalents of places to visit, as though they had a tangible presence "out there". Futures exist largely in human minds and, thus, in an objective sense they are never "out there" but, rather, are always "here, now". Recognizing that futures are intrinsic to present action and existence liberates the critical and creative imagination. It allows us to explore longer time frames than those usually dared by positivists and, unlike those who are concerned with prediction and control, to explore possible futures without colonizing them. Thus, the kind of futures study which can expand the temporal horizons of curriculum discourse is, paradoxically, that which is located firmly in our present consciousness, in critical reflection on the concepts, values, meanings, images and metaphors within which the temporal continuities of past, present and future are enfolded. An outline of such a "critical futures study" has been provided by Slaughter (1984, 1986b) and its use in resolving practical problems of curriculum design and curriculum inquiry is an on-going project for both Slaughter (1986a) and myself (Gough, 1986a).

ANTICIPATION AS A PRACTICAL (DELIBERATIVE) ART

My exploration of the interface between curriculum study and futures study has largely been conducted in response to the demands of designing and conducting in-service teacher education courses in curriculum development and administration. These courses have evolved in a climate of increasing devolution of authority in education from centralized bureaucracies to local school communities. Since there are no abstract procedural rules for resolving the practical problems of school-focused curriculum improvement, the most appropriate courses of curriculum study are those which are exploratory, eclectic and pragmatic in relating knowledge to policy and action. However, while there can be no universally applicable agendas for school-based curriculum decision-making, it is an educational practice which is susceptible to improvement and it should therefore be possible to develop strategies by which the course of curriculum deliberations can be affected in constructive ways. One reason for seeking some of these strategies among the methods of futures study is suggested by one of the facets of effective deliberation discussed by Joseph Schwab, namely, "the anticipatory generation of alternatives".

> Effective decision...requires that there be available to practical deliberation the greatest possible number and fresh diversity of alternative solutions to problems. One reason for this requirement is obvious enough: The best choice among poor and shopworn alternatives will still be a poor solution to the problem. A second aspect is less obvious. Many of the problems which arise in an institutional structure ... will be novel problems, arising from changes in the times and circumstances and from the consequences of previous solutions to previous problems. Such problems, with their strong tincture of novelty, cannot be solved by familiar solutions. They cannot be well solved by apparently new solutions arising from old habits of mind and old ways of doing things. (Schwab, 1970: 315-6)

Clearly, the "anticipatory generation of alternatives" is at the heart of futures study (and, indeed, of any policy-related study) and it would seem reasonable to suppose that some of the methods of forecasting alternative social, technological and environmental futures might also be applicable to generating alternative curriculum futures.

Among a number of general principles or broad strategies for exploring

futures in education (see Gough, 1986a) three seem to have particular significance for curriculum inquiry, namely:

1. anticipating a plurality of futures
2. an eclectic approach to sources and methods
3. critique and negotiation of meanings.

ANTICIPATING A PLURALITY OF FUTURES

At any given time many futures may be possible and we should be alert for the artificial narrowing of vision which characterizes most attempts to predict or prescribe "the" future (singular); futures (plural) thinking is mostly concerned with the elucidation and critique of alternatives among which we may distinguish between those which are:

i) probable - predicted in terms of present knowledge and trends;
ii) possible - virtually anything that can be imagined is possible, though some possibilities may seem to be more plausible than others;
iii) preferred - desirable alternatives among those which seem possible - they are not necessarily probable at present.

Since the purpose of exploring futures in education is to improve upon past and present policies and practices, we should seek to elucidate preferred futures by imagining and exploring the implications of possible alternatives rather than by choosing among those alternatives which may now seem most probable.

One important application of generating alternative possibilities for curriculum futures is the diagnosis and correction of error in the present. For example, Mochelle (1986) visualizes future choice in terms of environment design (see Figure 3).

Mochelle's architectural metaphors remind us that education is a social artifact - an institution designed and constructed by human societies. There are parallels between the foundations of physical architecture - the clay, sand or rock on which a building rests - and the paradigms of social "architecture": the understandings of reality, nature and human nature upon which our social institutions rest. Much curriculum work begins when we notice "cracks" in existing curriculum structures and we seek to identify and remedy the frictions, failures, faults and flaws which may have caused them to appear (Gough, 1986c).

Mochelle's environment design approach can be used to generate questions about curriculum choices which can guide anticipatory curriculum inquiry. For example, in postgraduate courses in curriculum study I have invited teachers and other curriculum workers to use the approach to probe their own circumstances. Mochelle's choice #1 is immediately familiar to those who are acquainted with the recent history of curriculum design and evaluation. All too often, we merely tinker with the superstructure of curriculum in order to make the cracks disappear temporarily, without investigating the soundness of the underlying structures and paradigms. But what are the curricular equivalents of Mochelle's remaining choices? For example, which of his choices is metaphorically akin to the current curriculum reforms underway in post-compulsory education in Australia and elsewhere? Mochelle's environment design approach demonstrates that the "anticipatory generation of alternatives" assists in both the diagnosis and resolution of practical problems. When used as a metaphor for curriculum decision-making it directs attention to the problems underlying immediate choices and actions.

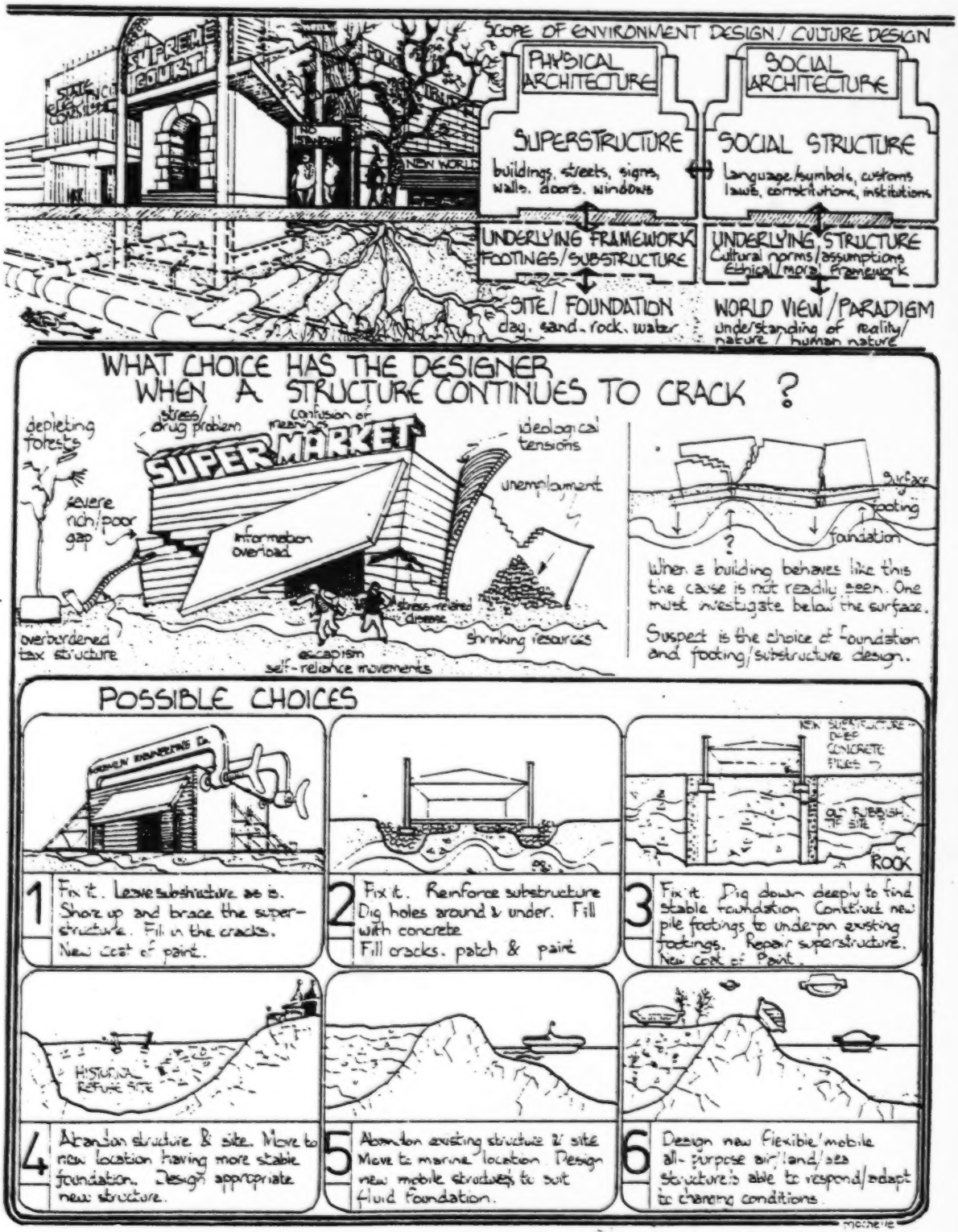

SCOPE OF ENVIRONMENT DESIGN / CULTURE DESIGN
PHYSICAL ARCHITECTURE
SUPERSTRUCTURE
buildings, streets, signs, walls, doors, windows
SOCIAL ARCHITECTURE
SOCIAL STRUCTURE
language/symbols, customs laws, constitutions, institutions
UNDERLYING FRAMEWORK
FOOTINGS/SUBSTRUCTURE
UNDERLYING STRUCTURE
cultural norms/assumptions
ethical/moral framework
SITE/ FOUNDATION
clay, sand, rock, water
WORLD VIEW/PARADIGM
understanding of reality/ nature / human nature
SUPREME COURT
WHAT CHOICE HAS THE DESIGNER WHEN A STRUCTURE CONTINUES TO CRACK ?
depleting forests
stress/ drug problem
confusion or meaning
SUPERMARKET
ideological tensions
unemployment
severe rich/poor gap
information overload
stress related disease
overburdened tax structure
escapism
self-reliance movements
shrinking resources
surface
footing
foundation
When a building behaves like this the cause is not readily seen. One must investigate below the surface.
Suspect is the choice of foundation and footing/substructure design.
POSSIBLE CHOICES
1 Fix it. Leave substructure as is. Shore up and brace the superstructure. Fill in the cracks. New coat of paint.
2 Fix it. Reinforce substructure Dig holes around & under. Fill with concrete Fill cracks. patch & paint
3 Fix it. Dig down deeply to find stable foundation Construct new pile footings to underpin existing footings. Repair superstructure. New coat of Paint.
ROCK
4 Abandon structure & site. Move to new location having more stable foundation. Design appropriate new structure.
5 Abandon existing structure & site Move to marine location. Design new mobile structures to suit fluid foundation.
6 Design new flexible/mobile all-purpose air/land/sea structures able to respond/adapt to changing conditions.
mochelle

Figure 3: Future choice - an environment design approach (Mochelle, 1986)

AN ECLECTIC APPROACH TO SOURCES AND METHODS

Images of alternative futures usually spring from four major sources and are elucidated by corresponding methods and procedures:

i) extrapolation - perceived consequences of present trends and events are elucidated by trend analysis and extrapolation;

ii) consensus - opinions about what might or ought to happen are elucidated by monitoring cultural and sub-cultural consensus (e,g., polls, commissions of "experts", Delphi techniques);

iii) imagination - the speculative imagination of people, especially artists in various media, produces images which are elucidated by connoisseurship, critique and, to some extent, by emulating their creative behaviour (e.g., scenario-building frequently emulates science fiction);

iv) combination - combining images from extrapolation, consensus and creative speculation produces further images of alternative futures; combinatory techniques (e.g., cross-impact matrices, relevance trees, futures wheels) are among the most characteristic tools of professional futurists.

To date, the anticipation of futures in curriculum has depended to a large extent on extrapolation from present trends or on a limited sub-cultural consensus among "experts" and elites (see, for example, Griffin, 1986). The extension of consensus techniques to wider publics is one way in which the "anticipatory generation of alternatives" in curriculum might be multiplied.

For example, children's views about what might or ought to happen are a relatively underused source of consensus forecasting, at least as far as curriculum futures are concerned. However, studies of children's images of global futures demonstrate some of the potential pitfalls of this line of inquiry. Both Wilson (1984) and McGregor (1985) are alarmed that children's visions of global futures seem to be dominated by images of the devastation following a nuclear holocaust or images of dehumanized technological dystopias. These writers are not only patronizing of their subjects but are also reductionist in their temporal horizons, since they seem to be less interested in children's views <u>as anticipations</u> than in proving adult culpability (past or present) for children's pessimism. McGregor, for example, even challenges the warrant of the children's views <u>as predictions</u> by suggesting that their lack of a "basic knowledge of things present and future" (whatever that might mean), and their resultant pessimism, is explained by unnnecessarily alarmist teachers of social studies, peace studies and environmental education.

There may be room for a form of curriculum inquiry which takes children's views of possible futures more seriously, that is less concerned to attribute the source of their anticipations to some past or present deficit in the adult world and more interested in the elucidation and critique of alternative futures as imagined and explored by children. The difference between reductionist and expansionist interpretations of children's anticipations is nicely illustrated by the difference between Michael Leunig's cartoon (Figure 4) and the following quote from an architect who became a school teacher:

"I like to see what the children are up to. You might say I think of them as a kind of early warning system for what's next in the world. Here we are getting older, and there they are getting different." (Mooney, 1982: 80)

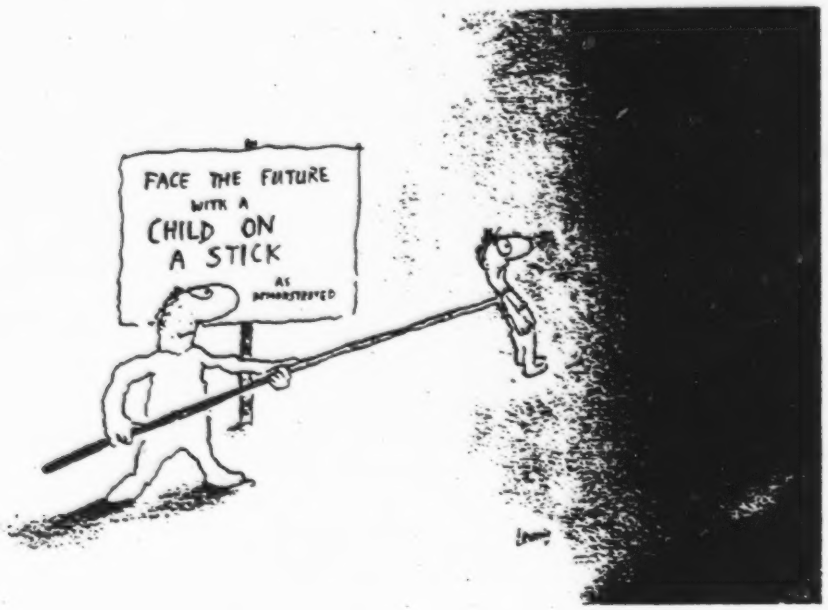


Figure 4: Cartoon by Michael Leunig

These differing interpretations of children's anticipations raise questions for curriculum inquiry. When we observe children "getting different", to what extent should we allow that they may be exploring futures of which we have no knowledge and that we will probably not inhabit? To what extent does the curriculum permit such exploration as distinct from "tying children to sticks" of our making which restricts their anticipations to futures that we have already colonized? For example, we have long tied children's perceptions of spatial relations to Newton's Euclidean model of the world, despite its displacement by Einstein's model in the early part of this century. As long ago as 1926 it was pointed out by A.N. Whitehead that certain inconsistencies in behaviourist theories of perception disappeared if one allowed that human perceptual organs were geared to Einstein's time-space continuum and not to Euclid's geometry (Emery, 1981). Yet, as Piaget and Inhelder (1956) observed, while the pre-school child's concept of space is topological ("getting different"?), by the age of twelve it is Euclidean ("tied to a stick"?).

Creative methods for generating alternative futures may also suggest fruitful lines of curriculum inquiry. For example, many of the images of futures in any historic period are conceived and communicated by creative artists, especially writers of speculative fiction and their equivalents in other media. There may be some value in attempting to collate imagined futures in curriculum and to relate them to new paradigms of education which seem to be emerging from changed assumptions about the nature of the world and

about how humans perceive and interact with that world (see Gough, 1986b, 1987). For example, Le Guin's story of Fairweather (see above) can be read as an imaginative rehearsal of an "ecological paradigm" of education (Emery, 1981). The sorts of questions that might be generated from such studies of creative images include: are images of future classrooms which represent them as electronic information technotopias an anticipation of a new paradigm for learning or a thinly disguised regression to industrial era pedagogies? Applications of other creative techniques to curriculum work (such as scenario building) are provided by Evans (1986) and G. Gough and McGuire (1986)

CRITIQUE AND NEGOTIATION OF MEANINGS

Discourse about futures in curriculum often fails to penetrate the taken-for-grantedness of the inherited meanings embedded in everyday language. A very simple example is the use of a phrase like "future in balance" to refer to some aspect of education - be it an institution, a program or a practice - about which there is some uncertainty. Such a phrase encourages a polarization of future possibilities, implying that the uncertainty will be resolved in one of only two ways which must be "weighed" against each other. Of greater concern is the ease with which Toffler's tortured metaphors ("future shock", "disease of change", "collision with the future") have persisted in futures discourse, spawning a generation of pop-futurists who have marketed incoherence as though it were insight.

Thus, another approach to the exploration of futures in curriculum is by way of the critical analysis of the inherited meanings, traditions, values, paradigms, myths, metaphors, concepts and guiding images of various kinds that are embedded in everyday language and which mediate our interpretations of experience and anticipations of future possibilities. This critique also anticipates negotiating with wider publics the validity and defensibility of emergent meanings and reconceptualizations and also anticipates the search for practical strategies for the selective legitimation of new or renewed understandings.

A practical tool for exploring such transformations of meaning is Slaughter's "transformative cycle" (1986ab), a modification of which, as applied to curriculum work, is illustrated in Figure 5. The transformative cycle is essentially a technique for understanding change which it achieves by representing negotiations of meaning as a continuing process of interpretive construction and reconstruction. The point of using the cycle is not to reify issues by forcing them to fit the cycle's phases but to explore how changes of meaning might occur and how meanings might be constituted in different discourses.

> An underlying assumption of the cycle is that meanings, values, commitments and understandings have become less certain, more fluid and dynamic than perhaps they once were. Changes which once may have spanned centuries are now taking place in a few years. Since few schools were established with the express purpose of mediating change it is not surprising that they find it hard to cope. Nor is it surprising that individuals exhibit symptoms of uncertainty, stress and fear as they regress to the minimal present... From within the extended present the processes of continuity and change look less threatening...individuals who know that they stand at the centre of their own histories as agents rather than spectators are well placed to negotiate conceptions and images of futures worth living in. (Slaughter, 1986b:67)

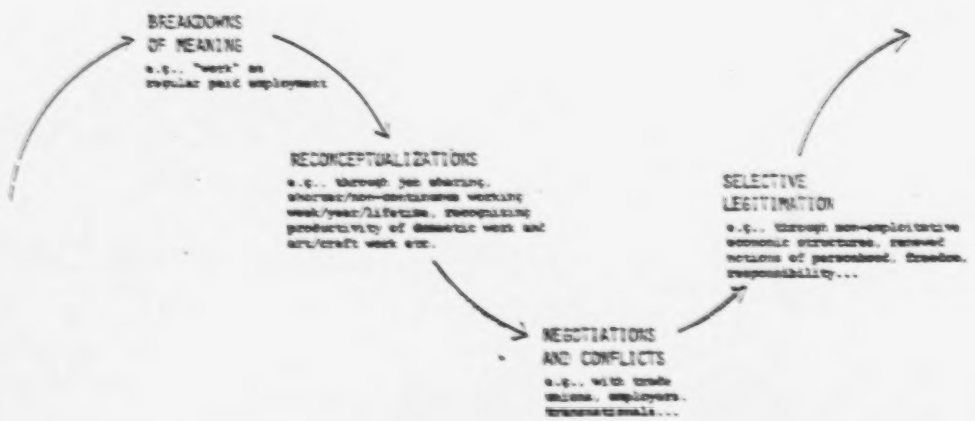
FUTURES THINKING AND CURRICULUM STUDY: WORKSHOP ACTIVITIES

Noel Gough
Victoria College

TRANSFORMATIONS OF MEANING

Discourse about curriculum involves the use of many concepts whose meanings change from time to time. Slaughter (1984) sees these changes in terms of a "transformative cycle" which has four phases: breakdowns of meaning, reconceptualizations, negotiations and conflicts, and selective legitimation. Thus, the "transformative cycle" for the concept of work in society might look like this:

PAST ----------FUTURE


BREAKDOWNS OF MEANING
e.g., "work" as regular paid employment
RECONCEPTUALIZATIONS
e.g., through job sharing, shorter/non-continuous working week/year/lifetime, recognising productivity of domestic work and art/craft work etc.
NEGOTIATIONS AND CONFLICTS
e.g., with trade unions, employers, transnationals...
SELECTIVE LEGITIMATION
e.g., through non-exploitative economic structures, renewed notions of personhood, freedom, responsibility...

Such cycles suggest that bringing futures thinking to bear in curriculum studies might entail:

1. participation in the critical interpretation and reinterpretation of inherited meanings and traditions
2. creative reconceptualization of new meanings via images, metaphors, values, etc.
3. negotiating and contesting with wider publics the validity/defensibility of emerging alternatives among intentions, anticipations and meanings
4. selective legitimation of meanings, images, etc.

We then need to ask: for my/our own form of curriculum practice (scholar, teacher, consultant, teacher educator or whatever) which traditions/meanings should be given high priority for critical reinterpretation? *how* should we go about the tasks of reconceptualization, negotiation and selective legitimation? what strategies and resources are available (or can be invented) to help us in these tasks?

Slaughter, Richard, Towards a Critical Futurism, *World Future Society Bulletin*, 1984, 18 (4) 19-25 and 18 (5) 11-21

Figure 5: an application of Slaughter's "transformative cycle" to curriculum study

REHEARSING FUTURE HINDSIGHT: A TECHNIQUE FOR CURRICULUM INQUIRY

"Rehearsing future hindsight" is a two-step technique which uses a futures perspective to generate issues and questions for curriculum study. I have been refining this technique in teacher education programs since 1983 (see, for example, Gough, 1984) when I referred to it as a "curriculum time capsule". An example of the technique is illustrated in Figures 6 and 7. When used in a group setting, I usually encourage individual written responses to step 1 ("Time Capsule A"), followed by small group work in response to step 2 ("Time Capsule B").

The rationale for rehearsing future hindsight is an inversion of a principle of futures study concerned with the rehearsal of surprise:

> One effective way of preparing for the possible surprises of the future is to rehearse the experience of surprise. Surprise may be manifested in various ways and can entail, for example, being amused, amazed, bewildered or dismayed. The rehearsal of surprise may thus include seeking out, or inventing, images of alternative futures which are perceived to be humorous, fantastic, puzzling or disturbing. (Gough, 1986a: 4)

It is not only likely that we will be surprised by what unfolds in our futures but that we will also be surprised, as now, by what is past. With the benefit of hindsight there is much in the past which we find amusing, amazing, puzzling or disturbing. We may equally well find that what is now taken-for-granted will, in some future time, provoke similar responses. Rehearsing future hindsight provides an imaginary standpoint from which to "deconstruct" present assumptions. The technique attempts to provide a framework which goes beyond attempting an academic answer to such questions as "what if this theory, or that theorist, is wrong?" Rather, the technique aims to simulate the <u>feeling of certainty</u> that accompanies hindsight - the sure knowledge that, in a possible future, theories and assumptions that we now take for granted have been falsified.

Rehearsing future hindsight begins, therefore, by confronting participants with some dogmatism from the past with which they are very likely to disagree. Ideally, step 1 should provoke some sort of discernible "gut reaction", such as laughter or anger. I usually encourage participants to write their responses individually, followed by a brief discussion during which their immediate reactions are shared. These shared responses can then be drawn upon in providing a context for step 2. Thus, if participants have said that they found "Time Capsule A" to be "absurd", "illogical", "crass", "funny", "ridiculous", "a joke", "difficult to take seriously", "annoying" or "a bizarre piece of pseudo-precision", they can be encouraged to laugh, jeer or sneer as they read "Time Capsule B".

Step 2 of rehearsing future hindsight can be based on any current orthodoxy, and responses seem best to be elicited in small group settings. The purpose of the exercise is to imagine and invent alternative "future histories" <u>as a basis for critically analyzing and evaluating the present</u> and my experience is that small groups are likely to be more creative and critical than individuals, many of whom tend to be locked into one perspective of the future and the present. The written responses to step 1 may be used to suggest analogous explanations for change, e.g., identification of assumptions in "Time Capsule A" now known to be false may lead to a search for assumptions in "B" which can be imagined to be falsified by future events or circumstances. Conversely, the identification of assumptions in the present which explain

CURRICULUM STUDIES AND FUTURES STUDIES: WORKSHOP MATERIALS

Noel Gough
Victoria College

CURRICULUM TIME CAPSULE: PART A

> The sum total of food converted into thought by women can never equal the sum total of food converted into thought by men. It follows, therefore, that men will always *think more than* women.
>
> Miss M.A. Hardaker, "Science and The Woman Question"
> *The Popular Science Monthly*, Vol. 20, March 1882

Miss Hardaker was a naive partisan of any approach that could be labelled physiological or quantitative, and she was led to the conclusion quoted above by the following argument:

When a man and a woman each eat a pound of bread, the woman obviously "will not be able to swallow her pound of bread in the same time as will the man," and from that point on her smaller organs require longer to process the pound of bread.

> If, now, we may further suppose this pound of bread converted into its equivalent of thought, it is evident that a pound of bread will represent as much thought in a woman's brain as in a man's; but as her smaller organs refuse to assimilate as fast as his, the larger organism will have a permanent advantage over the smaller one in the element of time. Any other conclusion ... implies a contradiction of the established relations of matter and force, and there is a general historic corroboration of this idea in the actual record of sex activity. Women have done something of nearly everything that men have done, but they have come later and with smaller offerings.

Thus, because of man's "larger size and consequently greater capacity for transforming energy," woman (and here Miss Hardaker uses a metaphor from astronomy) "must be content to revolve about him in the future as in the past." That is, Miss Hardaker believes that "the law of transformation of energy" governs the direct conversion of bread into thought.

REFERENCE

Susan Sleeth Mosedale, "Science Corrupted: Victorian Biologists Consider 'The Woman Question'", Journal of the History of Biology II (1) 1978 : 1-55

The passage above is typical of a certain large body of scientific writing published in the late nineteenth and early twentieth centuries, the writings of scientists opposed to women who were seeking equality in voting rights, in wages, in education and in access to careers.

Most educators in the late twentieth century would now oppose Miss Hardaker's views and would also oppose a school curriculum shaped by such views.

1. Briefly outline the reasons why, in the late twentieth century, we believe Miss Hardaker to be wrong.

2. Briefly outline the changes in school curriculum (between 1882 and the present) that have resulted from widespread opposition to views such as those held by Miss Hardaker.

Figure 6: Step 1 of a "rehearsing future hindsight" exercise

CURRICULUM STUDIES AND FUTURES STUDIES: WORKSHOP MATERIALS

Noel Gough
Victoria College

CURRICULUM TIME CAPSULE: PART B

The Role of Concrete Experience

Piaget's concept of the sequence of stages, with the concrete operational stage preceding the more abstract formal operational stage, implies that, in development, a learner must experience concrete versions of concepts and processes before he can understand their abstract forms. Some theorists and practitioners extend this to learning generally, independent of development. They maintain that a college student who is at the formal operational or abstract level in one subject, say literature or economics, may still be at the preoperational or concrete operational level in another, say physics. Furthermore, you cannot teach such a student physics by using a text that treats the subject abstractly until you first bring him to experience the concepts and processes concretely—for example, in a laboratory or in some other environment where he has actual experience and personal observation of the phenomena involved. There is a certain amount of truth to this, but nobody really knows how much. It seems unlikely, for example, that a college student is going to be as naive and unable to cope with a physics text as an elementary or junior high student, no matter how little experience he has had with the actual physical relationships and occurrences involved. On the other hand, it is equally obvious that some very sophisticated scholars are completely baffled by physics, just as some physicists are completely inadequate in dealing with sociological or psychological relationships. One implication for teaching is that, when a learner or group of learners is having difficulty with a concept or process, concrete experience may be needed. This has been put in the form of a set of guidelines that have been very influential in guiding teaching, namely:

I hear—and I forget
I see—and I remember
I do—and I understand.

REFERENCE: M. Daniel Smith, Educational Psychology and its Classroom Application, Boston: Allyn and Bacon, 1975:45

The passage above is typical of a certain large body of educational writing published in the late twentieth and early twenty-first centuries.

Most educators in the late twenty-first century would now oppose Piaget's views and would also oppose a school curriculum shaped by such views.

1. Briefly outline the reasons why, in the late twenty-first century, we believe Piaget to be wrong.

2. Briefly outline the changes in school curriculum (between 1975 and 2075) that have resulted from widespread opposition to Piaget's views.

Figure 7: Step 2 of a "rehearsing future hindsight" exercise

reactions to "A" may lead to imagining assumptions in the future which will cast present orthodoxies in a similar light.

For example, the amused contempt which the sample "Time Capsule A" provokes in many readers is partly based in adherence to ideologies of the present as well as perceived misconceptions of the past. What might be a future equivalent of the feminist ideology which shapes many people's responses to "A"? Can we imagine or invent a future ideology which will make Piaget's views seem absurd or indefensible?

CONCLUSION

Curriculum work is inherently futures-oriented. Any curriculum's design forecasts (perhaps optimistically) interactions among learners, teachers, materials and milieux. It seems reasonable to suggest, therefore, that curriculum inquiry should include in its subject matter the anticipations, aspirations, hopes and fears which are principles of present action and existence for those of us who engage in curriculum research and scholarship.

In one of Le Guin's stories of the Kesh, a young girl is on a journey from which she makes a short detour to visit her family in a nearby town. She recalls: "I had been to Madidinou many times, of course, but this time the town looked altogether different, since I was on a journey beyond it." (Le Guin, 1985: 10-11) The search for alternative curriculum futures should have a similar effect, to make the present - and particularly the choices we perceive within it - look "altogether different". But, unlike a journey beyond a town, alternative curriculum futures are not "out there" waiting for us to arrive. They are waiting only for us to imagine and to invent them here, now.

REFERENCES

Emery, F. (1981), Educational paradigms, Human Futures, Spring

Evans, O. (1986), The use of scenario writing to develop possible science curricula, Curriculum Perspectives 6 (2)

Goodson, I. (1985), Towards curriculum history, in Goodson, I. (Ed.),(1985), Social Histories of the Secondary Curriculum, London: The Falmer Press

Gough, G. and McGuire, M. (1986), "Our School": Towards a treatment for an imaginary video, Curriculum Perspectives 6 (2)

Gough, N. (1984), Time capsules (and other stories): inventing the future in teacher education, paper presented to the 14th Annual Conference of the South Pacific Association for Teacher Education, Canberra, 18-20 July

Gough, N. (1986a), Exploring futures in education: seven principles of procedure, paper presented to a search conference, "Futures in Education", conducted by the Commission for the Future and the Centre for Curriculum, Hawthorn Institute of Education, 6 May

Gough, N. (1986b), It's not that easy being green: struggling towards an ecological paradigm for education, theme address to "Thinking Environmentally... Acting Educationally", the Fourth National Conference of the Australian Association for Environmental Education, Lorne, Victoria, 1-5 September

Gough, N. (1986c), Futures in curriculum, Curriculum Perspectives 6 (2)

Gough, N. (1987), Greening education, in Hutton, D. (Ed.), (1987), Green Politics in Australia, Sydney: Angus and Robertson

Griffin, P. (1986), Predicted Futures and Curriculum Change, Melbourne: Ministry of Education

Grumet, M. (1981), Restitution and reconstruction of educational experience: an autobiographical method for curriculum theory, in Lawn, M. and Barton, L. (Eds.), Rethinking Curriculum Studies, London: Croom Helm

Le Guin, U. (1985), Always Coming Home, New York: Harper and Row

McGregor, P. (1985), The doomsday syndrome, Melbourne: Centre for Economic Education

Mochelle, R. (1986), Future choice - an environment design approach, Curriculum Perspectives 6 (2)

Mooney, T. (1982), Easy Travel to Other Planets, London: Jonathan Cape

Piaget, J. and Inhelder, B. (1956), The Child's Conception of Space, London: Routledge and Kegan Paul

Schwab, J. (1970), The Practical: A Language for Curriculum, Washington, D.C.: National Education Association

Slaughter, R. (1983), Critical futurism and curriculum renewal in Britain, The World Future Society Bulletin 17 (2)

Slaughter, R. (1984), Towards a critical futurism, World Future Society Bulletin, 18 (4)

Slaughter, R. (1986a), Futures Across the Curriculum: A Handbook of Tools and Techniques (Trial Version), Lancaster: University of Lancaster

Slaughter, R. (1986b), Critical futures study - a dimension of curriculum work, Curriculum Perspectives 6 (2)

Wilson, N. (1984), Student images of the future, Newsletter of the Australian Association for Environmental Education 19